

Diesel Fuel News

HART

Business Intelligence on Diesel Regulation, Marketing, Engine Technology & Refining Processes ...Worldwide

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Around the World of Diesel

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Shell Canada Eyes 'Second-Generation' Biodiesel Possibilities

San Antonio, Texas – Worries about biodiesel cold-flow and quality problems are prompting Canadian refiners to consider “second-generation” biofuels that could overcome typical problems of conventional esterified biodiesel.

In a presentation to *Hart World Refining & Fuels Conference* here, Shell Canada regulatory affairs manager Gerry Ertel pointed out that diesel fuel cloud-point is a “critical property” in the bitterly cold Canadian winters, and biodiesel makes cold-flow worse.

Canola oil is expected to be the principal feedstock for esterified biodiesel in Canada, with “some tallow, fish oil and soy-oil,” he said. Among the biodiesel feeds, canola has the best cold-flow properties.

Aside from cold-flow problems with biodiesel, refiners and marketers also must worry about biodiesel-blend impact on oxidative stability and microbial growth in home-heating, agriculture and generator-set applications, he said.

“Sterols [in biodiesel blends] are causing [solids] precipitation above the cloud point,” clogging fuel system filters, he pointed out (*see Diesel Fuel News 1/2/07, p1*).

Another big question: Biodiesel solubility in “very low cloud ULSD,” he said.

If 2% biodiesel (B2) blends were to become mandatory, then Canadian refiners likely would have to compensate for the poorer cold-flow by adding even more kero-jet cutter stock to B2-blend diesel. Because Canada is already short of kero-jet for winter blending, this raises new cost and logistical problems.

On the other hand, if refiners could make their own hydrotreated biodiesel blend, then there's a “real potential” to “max-out renewable content at one facility and eliminate quality, blending and pipeline concerns” with biodiesel-blend, he said.

What's more, refinery hydroprocessing would eliminate the costs of building heated rail/truck cars, heated lines and heated storage tanks for biodiesel blending at diesel terminals.

To achieve a better future with refinery processing of biodiesel (rather than esterification), “a variety of hydroprocessing options are under review” including seed-oil blended into crude, seed-oil co-processed in existing distillate hydrotreaters and dedicated biofeedstock hydroprocessing like the UOP “green diesel” or Neste “NExBTL” second-generation biodiesel schemes.

However, any such schemes will require refiners to assess cost and risks to over-all refinery process integrity, Ertel warned. While refinery hydroprocessing is more costly than esterification, economic incentives (if made available to refiners) might offset those costs, he said. – *Jack Peckham*

Well-Planned ULSD Investments Pay-Off for Refiners – Despite Hesitations, Surprise Pipeline Demands

San Antonio, Texas – Refiners who decided to convert most of their middle distillates to ultra-low sulfur diesel (ULSD) in time for the U.S. EPA mid-2006 deadline have to be thanking their lucky stars today.

Margins on diesel fuel in North America have been fat for the last 18 months, with ULSD margins especially hefty during the past winter. That's a huge relief to refiners who worried about recouping hefty investments in hydrotreaters, hydrocrackers and extra hydrogen capacity for ULSD.

Yet three or four years ago, when refiners were finishing their ULSD project plans, it was hesitation, rather than optimism, that ruled the day.

"It's strange how the whole story unfolded, going from 15-ppm sulfur diesel [the initial EPA 2006 ULSD target] to now, where most refiners are below 7-8 ppm for pipeline specs, with already fabricated reactors and design specs," as one refiner told us following a "Successful Revamp Solution for ULSD" technical paper presentation at National Petrochemical & Refiners Association (NPRA) annual meeting here.

"It's especially strange considering the rough economic times [in earlier years] where refiners did not want to spend any money on anything. Now there's a shift in the marketplace to the point where we're asking ourselves, 'why can't we make more?'" this refiner told *Diesel Fuel News*.

A good case in point: What Tesoro went through prior to deciding whether and how to upgrade its 115,000 barrels/day Anacortes, Wash., refinery for ULSD output.

In a technical paper here (*NPRA AM-07-28*), Tesoro Refining & Marketing process engineering manager Russ Crawford described how the company initially struggled to evaluate various options for the Anacortes refinery, including a "do-nothing" option that would have forced (untreated) diesel exports or diversion to low-margin cutter-stock.

"Thank goodness we didn't choose the do-nothing option," Crawford pointed out here, as the heftier margins on U.S. diesel have more than justified refiner ULSD investments.

Once the company got past the "do-nothing" option, then it had to come up with a ULSD upgrade project that met several corporate objectives, including:

- Minimize capital expense, use existing equipment and produce one grade of diesel (10-ppm sulfur initial target) to minimize the call on working capital for multiple diesel grades.
- Minimize downgrade of diesel stocks, while maintaining current production capability and current level of reliability.
- Minimize operating costs by maximizing run-length between catalyst changes.
- Minimize downtime during construction.

Out of 12 options that Tesoro examined with distillate hydrotreater (DHT) licensor Haldor Topsoe, three estimates were prepared, including "integrate a small hydrotreater with the existing DHT; modify the existing DHT with a second reactor; or build a new DHT that could be used as a second-stage or primary unit."

Among the three options, modifying the existing DHT had the best net present value and internal rate of return, Tesoro found.

Once settling upon that option, Tesoro then looked for a properly timed revamp schedule, tied to a separate revamp of a crude unit to "avoid or reduce earnings loss during the revamp of the DHT," he explained.

Major equipment in the 25,000 b/d DHT revamp included a new, additional second reactor for catalyst volume; a recycle compressor, and an amine contactor, he said.

Design specifications assumed 75% straight-run stocks and 25% cracked stocks. Total aromatics in the design feed were 39%, with sulfur at 0.52%.

"Fortunately, the site of the existing DHT had room to expand," he said. While an overhead power line and several underground lines had to be relocated, most of the work was completed during a normal refinery turnaround to minimize downtime.

With 25% of the feed being a low (16-18°API) gravity LCO, the HDT scheme not only achieved ULSD sulfur targets but also boosted cetane by between 2 to 2.5 numbers.

Catalyst loading, a “critical” step, involved using “high-vapor-rate trays” and “dense loading” while still maintaining “normal pressure drop,” he said.

At the end of the project, Tesoro found that met its original capex target, while meeting operational targets as well, he said. “The operation of the unit has been excellent, meeting the more stringent 7-ppm sulfur target [demanded by pipelines]. Further, optimization of temperature control and feed quality are under review,” he said.

Here are the design and actual start-of-run conditions:

Summary of Conditions

True to its Spanish name, Tesoro also discovered a hidden treasure: a “modest” hydraulic loop improvement to get additional hydrogen enabled the ULSD project to operate above design, enabling conversion of what otherwise would have been low-value cutter stock to ULSD, at a very healthy margin.

Now, following initial success, Tesoro is already thinking about improvements that can be made with “next-generation” catalysts, he added. – *Jack Peckham*

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	Revamp Design	2006 SOR (ULSD)
Feed Rate (MBPD)	25	25
LHSV	7	7
API	31	30
H ₂ Consumption	270-320	300
WABT F	675	677
Temp rise F	85	77
Feed S wt%	.52	.64
Product S wppm	7	6.7

Refiners Take Note of Diesel Price Premium; Capital Plans to Change

San Antonio, Texas – Traditionally, diesel fuel used to be cheaper than gasoline. But a flip-flop trend has emerged over the past couple of years, driven in part by soaring Asian and European diesel demand but also by a continuing strong demand curve in North America, where diesel demand continues to grow at a faster clip than gasoline.

This recent phenomenon not only is affecting refiner weekly “make or buy” decisions on distillates and gasoline, but also is beginning to penetrate the thinking of executives in charge of refinery capital expansion projects, as Marathon Petroleum fuels technology manager Mike Leister pointed out in a March 22 presentation to *Hart World Refining & Fuels Conference* here.

If long-term distillate price signals continue to show a premium over gasoline (as per current indications), then that could have an impact not only for the final configurations of some huge U.S. refinery capital expansion projects underway (those of Marathon and separately the Aramco/Shell project, among the largest pending today) but also could impact the more conventional debottlenecking projects where refiners decide whether and by how much to expand certain types of process unit capacities.

“A new refinery will be built differently if diesel has a [substantial] premium to gasoline,” but “we won’t know [what refiners actually do] until three, four or five years from now,” Leister said, given the time-lag to finish some U.S. refining projects already in the queue.

Yet the right signals now seem to be in place, as “diesel fuel is likely to continue to be priced higher than gasoline” due to relatively higher demand growth and very little spare refinery capacity, thanks to very high refinery utilization rates, he said.

Broad evidence favoring diesel-oriented capital projects is growing, as several years more of diesel price premiums to gasoline are now foreseen in the Atlantic Basin, as U.S. Energy Information Administration (EIA) analyst Joanne Shore pointed out to National Petrochemical & Refiners Association (NPRA) meeting here.

“We have all been watching the growth in diesel demand and have known that at some point, the price for diesel would have to rise relative to gasoline to produce the incentives needed to shift refinery investment towards more distillate production,” Shore said. “Is this the beginning of that situation?”

Refiners are indeed paying attention to this question, but whether this results in a big capital shift toward distillates and away from gasoline is still uncertain.

Regardless of what the future may hold, “things are changing in refineries,” Leister pointed out here. “Historically, U.S. refiners maximized gasoline most of the year, and those were the times they were the happiest.” Late fall and winter were typical maintenance turnaround times because margins were relatively poor then.

U.S. refiners also fell into a pattern of planning mostly for gasoline production capacity expansion, which neatly fit into the refiner’s own branded gasoline strategies. That’s unlike diesel, which in the U.S. typically doesn’t carry a major refiner’s brand.

U.S. refiner financial benchmark thinking also has typically tilted toward gasoline, via the well-known “3-2-1 crack spread,” or the margin from the two barrels of gasoline and one barrel of distillate, from three barrels of crude. Such a measurement traditionally made “gasoline twice as important as diesel,” Leister pointed out.

A further factor affecting traditional refiner thinking was the issue of incremental barrels. If a refinery is mostly configured toward gasoline, then once all the conversion units are filled up, adding incremental crude would only result in additional diesel. Hence refiners historically hadn’t focused as much on adding distillates capacity *per-se*.

Another limiting factor clouds the issue: refiner ability to respond to market signals for more distillates. Although most U.S. refiners have the capability to “swing” a limited volume of heavier components (which otherwise could be used in gasoline) to diesel, “this capability varies by refinery and is believed to be in the 6-8% range,” Leister pointed out. But there’s another problem: “high refinery utilization [as is now typical at U.S. refineries] may reduce this capability,” he said.

While refiners traditionally boosted output of heating oil for the winter months, “unfortunately heating oil is a less and less important player for refiners,” he said. But on the other hand, diesel demand growth has more than made up for slackness in heating oil.

“Since the fall of 2004, the [U.S.] market has signaled for refiners to be in maximum distillate operations almost continuously,” Leister pointed out.

Unlike in past years when most refiners routinely performed turnarounds in winter, “refinery operations have been at very high utilizations throughout the year” and “turnarounds keep utilizations tight in fall and winter,” making refinery operations profitable throughout the year.

“We’re going through a change that’s very different” from past experience, he said. “The majority of the time, distillate is higher priced than gasoline. So, the market tells refiners to run maximum distillate, even in summertime.

“My feeling is: We’re in a new stage. We’ve filled up our distillate [conversion] capacity as well as gasoline.

“And if you leave out turnarounds, refiners are still running at high rates [year-around] and fall and winter operations are now profitable, even without the heating oil factor.”

As for the future, “diesel is projected to grow at twice the rate of gasoline [demand] for the next 20 years,” while political pressures to boost vehicle corporate average fuel economy (CAFE) could boost diesel demand while depressing gasoline demand even further, he said. “So, diesel growth rate might be three-times instead of two-times the rate of gasoline demand” growth, he said.

Many U.S. consumers will have flexibility to reduce gasoline demand via car-pooling or telecommuting, rather than driving to work. But that’s not the case for diesel, which is a commercial and industrial fuel, he pointed out. “There’s a lot less room for the economy to respond to a diesel price increase,” he said.

Meantime, U.S. refiners can count on growing gasoline export volume availability from Europe, unlike the ULSD situation where Europe is falling further into deficit. So a lack of ULSD export capacity would seem to provide yet another reason for U.S. refiners to focus more on ULSD capacity expansion.

At least for the next few years, all of this could look discouraging to diesel consumers, or automakers seeing opportunities to sell more high-performance diesel vehicles in the U.S. market.

Yet even with relatively high diesel prices, consumers may “serendipitously” be paying diesel prices that more fairly represent diesel’s higher Btu value, Leister showed.

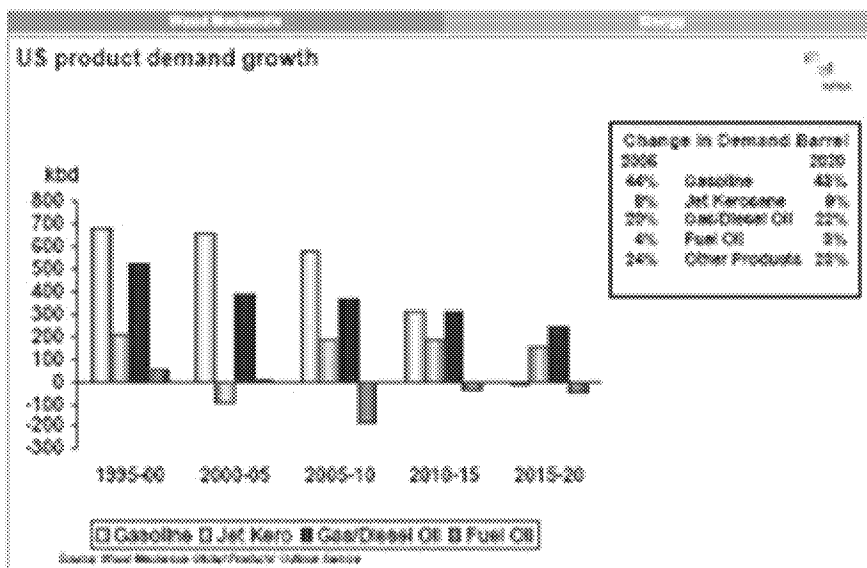
Because diesel fuel has about 15% more energy per gallon than gasoline, that means diesel fuel sold at its *energy* premium should be 30 cents/gallon higher than gasoline priced at \$2.00, or 45 cents/gal. higher than gasoline priced at \$3.00/gal., he showed. – Jack Peckham

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U.S. Diesel Demand Growth to Continue, But Gasoline to Fall by 2015

San Antonio, Texas – Demand for diesel/gasoil will continue to grow in the U.S. throughout the next decade, unlike gasoline, which will show negative demand starting around 2015, a WoodMackenzie refining analysis shows.

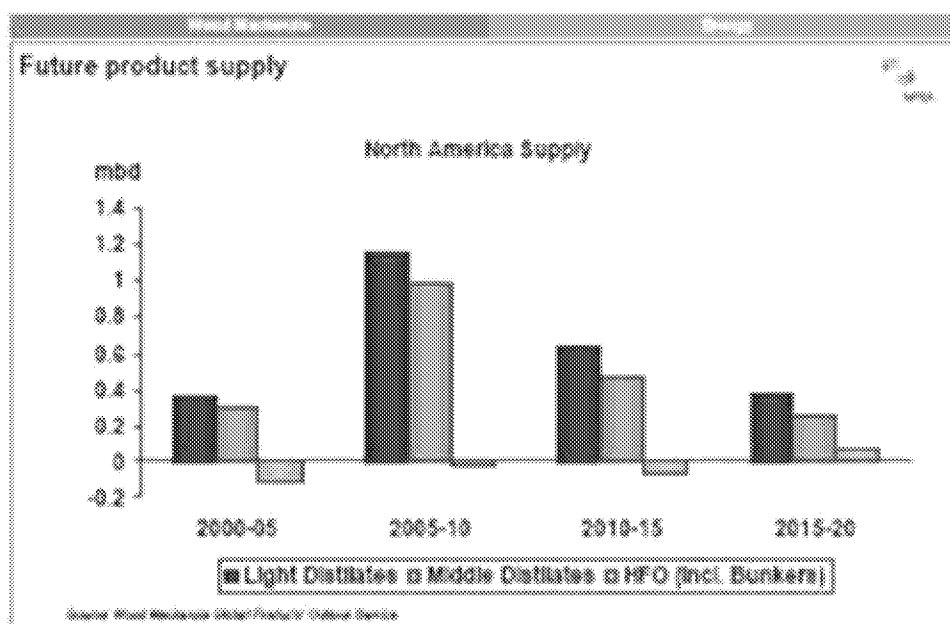
The analysis, presented to National Petrochemical & Refiners Association (NPRA) annual meeting here, shows that diesel/gasoil, plus kero-jet demand, would take 31% of the crude barrel in the U.S. by 2020, while gasoline would decline to 43%, from 44% today (*see chart, below*).



Source: WoodMackenzie

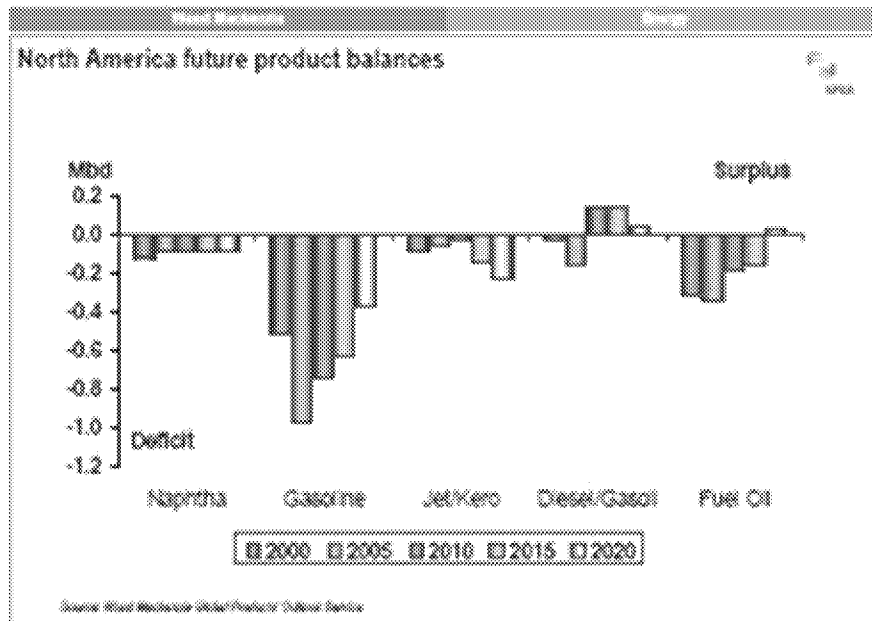
What's more, diesel demand growth will continue to rise at about a 200,000 barrels/day annual clip between 2015-2020, whereas gasoline demand goes negative, dropping by about 20,000 barrels/day annually over the same period.

As for supply side growth over the same period, here's WoodMac's outlook for North American distillate supply:



Source: WoodMackenzie

As for the resulting supply/demand imbalances for North America, here's WoodMac's forecast covering the same periods:



Source: WoodMackenzie

This shows that N. American gasoil/diesel balance should be in slight surplus from 2010, 2015 and 2020, whereas the chronic shortage of gasoline in N. America actually declines sharply over the same period. Coking investments explain the coming decline in gasoline shortages in N. America, WoodMac downstream oil analyst Mike Wilcox explained.

Over the same period, Europe's chronic diesel deficit continues to grow, while its gasoline surplus likewise grows.

Given sharp surplus capacity for gasoline coming on-line after 2010 in Middle East refineries, this would exert downward pressure on gasoline prices during the next decade. "Increasing Euro gasoline surplus at a time of declines in N. America [gasoline deficits] raises concerns about structural change in Atlantic gasoline markets," Wilcox said.

Over the same period, diesel/gasoil surplus capacity rises sharply among Middle Eastern refiners only after 2015, to around 1.1 million barrels/day, the forecast shows. The same phenomenon happens among India refiners starting around 2015, when surplus diesel/gasoil capacity hits about 400,000 b/d.

While conventional wisdom points toward growing supplies of heavy/sour crudes, the WoodMac forecast for N. American refiners sees API gravity stabilizing and sulfur content actually declining, as N. America crude production would increase by 2 million b/d over the next 10 years.

As a result, Wilcox sees "no major supply driver towards heavier/higher sulfur refinery intake in North America" over the next decade. — Jack Peckham

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U.S. EPA's Urea-SCR 'Guidance' Leaves Tough Requirements Intact

Despite heavy criticism from engine and vehicle makers on a "draft" urea-selective catalytic reduction (SCR) "guidance document," U.S. EPA has left most of the "guidance" virtually unchanged in the final version.

Nevertheless, DaimlerChrysler (DCX) said it “welcomes and supports” the final guidance (see: [link to source document](#)) as it at least helps clarify the hurdles that automakers and engine makers must jump in order to get U.S. EPA certification of clean-diesel vehicles employing urea-SCR.

Diesel Technology Forum (DTF) likewise said it “welcomes the EPA’s guidelines for SCR,” terming the technology “one of the most cost-effective and fuel-efficient technologies available” for both light and heavy-duty vehicle control of nitrogen oxides (NOx) emissions.

Here’s what EPA says in its now final (March 27) “certification procedure” guidance on SCR:

“We recognize that SCR technology is still evolving and reserve the right to make any necessary changes to our approach,” EPA says. “We also recognize that efforts currently underway by manufacturers, including [urea] infrastructure development, could help address some of the issues raised in this guidance prior to EPA’s review of individual certifications.”

EPA isn’t budging from its legal stance on minimum-mileage “allowable maintenance” nor “adjustable parameters” definitions on when a urea tank must be refilled. “This means that we have the authority to test an SCR-equipped vehicle with varying levels of reducing agent in the storage tank or, theoretically, without any reducing agent at all,” EPA says.

“If the manufacturer can prove to EPA that their SCR system design will not run out of reducing agent in-use and thus not exceed the emission standards, [then] we may determine that the design is acceptable.”

Vehicle compliance must include a driver warning system, driver inducements, identification of incorrect reducing agent [urea], plus a tamper-resistant and durable design, EPA says.

Warning system for light-duty vehicles “should begin to activate at approximately 1,000 miles” prior to urea tank running empty, EPA says. For heavy-duty vehicles, vehicle weight class will affect the required warning interval, but it “should begin soon enough for the operator to have adequate opportunity (e.g. two refuelings)” of the diesel tank.

No engine-restart would be one acceptable way of inducing drivers to refill urea tanks, EPA says.

As for urea quality detection, both NOx sensors and urea sensors would be appropriate. “We believe that industry-wide quality specifications will largely address this issue,” EPA says.

As for urea accessibility, EPA will “review whether the following procedures are or will be in place:

1. Reducing agent available at dealerships. “The manufacturer supplies its dealers with the appropriate reducing agent and uses best efforts to ensure that they will have adequate supplies . . .
2. Reducing agent available at truckstops. “It will be important for manufacturers to demonstrate either individually or as part of a collective effort that it will be reasonable for truck operators to obtain reductant at truckstops or other fueling locations when they stop to refuel.”
3. Back-up plan. Manufacturers must offer alternative urea delivery “such as a toll-free phone number” with “quick turnaround, such as overnight delivery to the consumer.

“Manufacturers should also be able to demonstrate that reducing agent will be available at other commercial outlets . . . [including] fueling stations, quick oil change facilities, repair and service facilities and retail outlets (e.g. automotive part stores and large retail stores).”

EPA also will require industry-wide urea quality standards and “unambiguous” labeling of the SCR-quality urea. Manufacturers also must avoid urea freezing via heating schemes.

Finally, manufacturers should adopt “the longest interval reasonably possible” for refilling urea tanks, EPA says. – *Jack Peckham*

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Six Large-Scale CTL Plants Seen ‘Feasible’ in U.S. Within 15 Years

San Antonio, Texas – A new financial and technical analysis shows that four to six large coal-to-liquids (CTL) Fischer-Tropsch plants (each around 40,000 barrels/day) focused on middle distillates look “feasible” for the western U.S. within the next 10-15 years.

So found refiner consulting group Baker & O'Brien in a study (AM-07-27) presented to National Petrochemical & Refiners Association (NPRA) annual meeting here.

Given abundant and cheap western U.S. coal supplies, high crude oil prices and growing political support for reducing U.S. oil imports, it's now seen feasible for at least half-a-dozen U.S. CTL plants to "produce distillate fuels capable of meeting the specifications on common carrier pipelines moving petroleum products in PADD 2 and PADD 4," Baker & O'Brien senior consultant Mark Landrum explained here.

"Such production could result in a shift in regional refining distribution patterns for jet fuel and diesel fuel blending stocks," the study found.

Such plants could yield middle-distillate blendstocks representing "as much as 20% of the current PADD 2 demand of approximately 1.25 million BPD, or exceed the current PADD 4 demand of approximately 180,000 BPD," Landrum said.

Theoretically, up to 371 CTL plants of 60,000 barrels/day apiece could be built in the U.S. But if only 10 were built near large coal reserves, then the U.S. could realize 667,000 barrels/day of CTL diesel, utilizing only 10% of available coal reserves, he added. Such plants could operate for at least 60 years without exhausting nearby reserves.

If that were to happen, then much of the CTL ULSD product would move from PADD 4 to PADDs 2 and 5, while PADD 3 refiners would instead likely shift their current ULSD shipments from PADD 2 toward PADD 1.

"Based on current technologies and capital costs, CTL processing in the U.S. appears to be competitive at about \$48 per [crude oil] barrel" and would likely be geared toward diesel and jet-fuel production, Landrum showed. This assumes \$85,000 capex, \$10/ton for Powder River Basin coal and a liquids yield of 1.9 barrels per ton of coal, for CTL projects based in the western U.S.

"Eastern U.S. coal appears more applicable for use in IGCC facilities for power generation," he said. CTL plants are more likely to be built in the western U.S. due to lower feedstock costs, enhanced oil recovery (EOR) opportunities for carbon dioxide capture & storage (CCS), and long-life coal reserves, he added.

"If there are larger-scale (40,000 barrels/day and larger) CTL plants built, [then] regional supply/demand balances and product movements between PADDs could be impacted and refineries may need to make changes in historical distribution patterns.

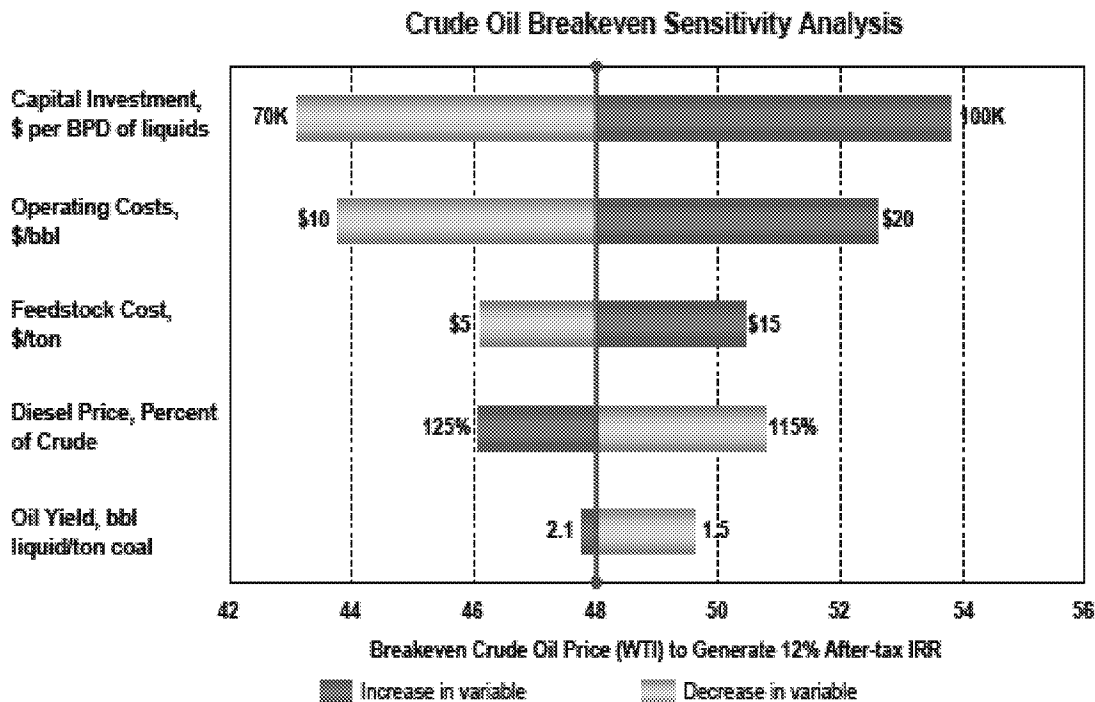
"CTL plants are likely to be constructed primarily in PADD 4, a region that has a relatively low demand for jet fuel and diesel. Refiners in PADDs 2, 3 and 4 should consider whether CTL diesel represents a potential opportunity to create additional value from blending operations."

While CTL capex looks pricey compared to crude-oil refining, the feedstock costs are relatively cheap, he showed. Actually, with western coal prices as cheap as \$10/ton, it's possible to get 34 times more revenue from coal than from oil for making ULSD, the study shows.

Another important factor: wholesale diesel prices in the U.S. have been running at about 120-130% of West Texas Intermediate crude-oil prices for the last three years.

Bonus: With CTL diesel likely to sell at somewhere between U.S. Gulf Coast ULSD and California Air Resources Board (CARB) ULSD prices, that means CTL plants should be able to realize a premium on their Fischer-Tropsch ULSD sales versus ordinary diesel, the study figures.

Here's how the study calculates profitable CTL plants based on a band of presumed capex charges and crude-oil prices, without any tax incentives or other government subsidy schemes:



NOTE: Economics based on 100% equity and do not assume any favorable tax incentives or other subsidies.

Source: Baker & O'Brien

Based on this calculation, CTL plants would be profitable with crude between \$43-\$54/barrel and capex from \$70,000 to \$100,000 per daily barrel capacity.

The calculation includes installation of CO₂ capture equipment, but not shipping and storage since each plant would have “very site-specific” costs for CCS, he said.

Asked what assumptions would be made for water and power requirements, Landrum told us in a post-presentation interview that wind power may be possible for part of a CTL plant’s power needs, especially if the plant is designed to maximize liquids output.

As for water, “Wyoming is favored because of coal-bed methane” (CBM) projects that would yield water useable in a CTL plant, he said. But for Montana, “water is more of an issue” that could hinder more aggressive CTL plant developments, he said. -- *Jack Peckham*

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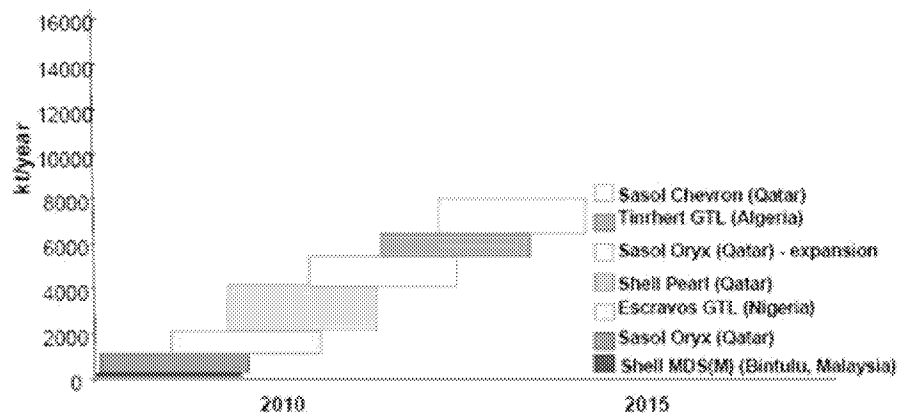
Shell Sees GTL Capacity Exceeding 8 Million Tons/Year by 2015

San Antonio, Texas – Despite recent cancellations or deferrals of potential Qatari gas-to-liquids (GTL) projects involving ExxonMobil, ConocoPhillips and Marathon, world GTL capacity is nevertheless on track to exceed 8 million tons/year by 2015, a Shell forecast presented to the *Hart World Refining & Fuels Conference* here showed.

Even that would represent only about 1% of world diesel supply, hence the GTL plants won’t do anything to flood the ULSD market.

Here's the big picture, including the impact of recent cancellations/deferrals:

GTL Fuel Capacity: current and proposed



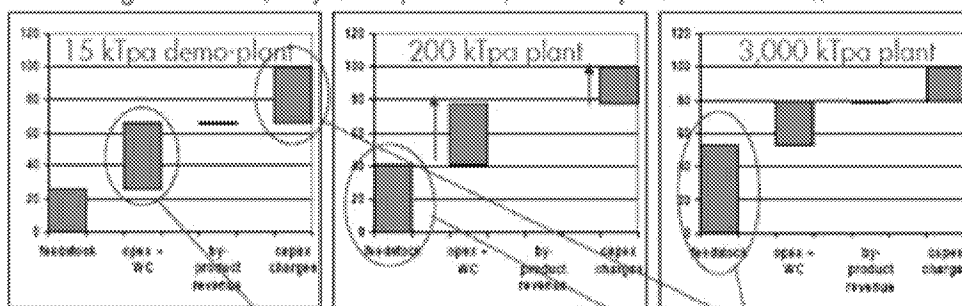
These projects don't include other Fischer-Tropsch projects such as coal-to-liquids (CTL) or biomass-to-liquids (BTL), although Shell is involved in all three technologies in various parts of the world, as Shell fuels technology advisor Ralph Cherrillo explained to the Hart conference here.

The BTL work (with German technology developer Choren) could provide big greenhouse gas (GHG) emissions benefits compared to conventional diesel, with about an 85% reduction compared to baseline.

But economics of BTL still face an uphill battle, he showed:

Biomass-to-Liquid Plant Economics

Relative manufacturing cost build up (reference = 100 for the overall production cost)
greenfield site, 20 years depreciation, feedstock price delivered : 4\$/GJ



- The demo-plant economics are primarily dependant on the Capital charges and on the operation costs. (Scale effects).
- Larger BTL plant economics are heavily dependant on the feedstock costs (40-50%) and on to a lesser extend on the operational costs.

Once the technology is proven, the main issue for BTL economics is the feedstock (availability, logistics and delivered price)

CTL likewise faces considerable cost hurdles even though the feedstock (coal) today is relatively cheap.

CTL "requires a lot of experience to build and run, and a lot of manpower to build," he pointed out.

Synthesis gas cleanup is a big challenge because of high sulfur levels in coal. But beyond that is the big issue of CO₂ capture and storage (CCS), "and you must deal with CCS to make it go," he said.

As a result of high capital cost and risk, "there are not a lot of entities in the U.S. with the financing and capability to build those [CTL] plants," even though roughly 35 such plants have been proposed, he said.

But because of the capital, experience and CCS challenges, CTL plants must start smaller than the 140,000 barrels/day Shell-Qatar GTL plant, he said. Instead, CTL plants perhaps will be in the 5,000 to 25,000 b/d range – if all challenges can be met.

“But there are other, more economic [CTL] opportunities elsewhere. We signed on for one in China, with Shenhua,” although finalization of this proposed project is still months away, Cherrillo cautioned.

Summing up, Cherrillo pointed out that the gasification step “dominates” process comparisons between GTL, CTL and BTL. Thermal efficiency of CTL and BTL are 10-15% lower than GTL, while process CO₂ production is five times higher with CTL than GTL. On the other hand, life-cycle CO₂ with BTL is 80% lower than for GTL and 90% lower than for CTL.

Economics of these “XTL” schemes mainly depend on scale and feedstock costs, while biomass preparation and transport improvements are “key to cost reduction for BTL,” he pointed out. -- *Jack Peckham*

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Giant Retailers, Railroads, Shippers Push ‘Dirty’ Diesel Fee for Port Cleanups

The world’s largest retailer association (U.S. National Retail Federation, NRF) along with Association of American Railroads (AAR), Pacific Merchant Shipping Association (PMSA) and other organizations representing importers and exporters issued a joint call on a new scheme to control diesel truck emissions and improve transportation infrastructure for California’s diesel-powered ports.

In a March 26 statement accompanying a joint “white paper” by the groups, NRF Vice President Erik Autor said that “California lawmakers have been trying to address congestion, air pollution and other concerns through legislative means such as container taxes. We believe the better approach is for the private sector to address these issues and work with state and local government to resolve them.

“The companies that benefit from California’s ports are willing to pay their fair share, but we believe a cooperative approach would be more cost-efficient and yield better results than a one-sided solution focused on [container] fees and taxes.”

According the group, key to their proposed scheme is “establishment of state emissions standards for all diesel trucks operated in California, with early compliance for harbor drayage trucks working at California ports. Marine terminals would collect a mitigation fee on trucks that do not meet the standards by a specified time, and the revenues collected would be managed by a private financial institution to provide low-cost loans or lease-purchase arrangements for owner-operators who want to upgrade their trucks.”

Rather than using state funds for diesel cleanups, “we are proposing that absolutely no taxpayer money be used to replace old trucks as some have proposed,” Autor said. “We strongly believe that using general obligation bonds for this purpose is not a good way to upgrade the harbor truck fleet. However, we do believe the private sector – principally retailers, importers and exporters – can do their part in helping pay for cleaner harbor trucks through the freight rates they pay.

“The simplest and most direct way to achieve this goal is for the state to set standards for diesel trucks operating in California. We call on other environmental and taxpayer groups to join us in this approach by urging the [California] Air Resources Board [CARB] to move forward on this regulatory process expeditiously.”

The groups also call for establishment of a “Southern California Corridor Authority comprised of state and local governments and private organizations to identify user fees, road tolls and other financing options for six major infrastructure projects,” including replacement of the Gerald Desmond Bridge, SR-47 Expressway improvements, I-110/SR-47 Connectors improvements, I-710 improvements, potentially including truck-only lanes, the Southern California International Gateway near-dock rail project (for which funding has already been identified) and future modernization and expansion of the Intermodal Container Transfer Facility near-dock rail facility in Los Angeles.

The group’s joint “white paper” outlining these schemes is available at: [link to source document](#).

National Retail Federation touts itself as “the world’s largest retail trade association, with membership that comprises all retail formats and channels of distribution including department, specialty, discount, catalog, Internet, independent stores, chain restaurants, drug stores and grocery stores as well as the industry’s key trading partners of retail goods and services. NRF represents an industry with more than 1.6 million U.S. retail establishments, more than 24 million employees -- about one in five American workers -- and 2006 sales of \$4.7 trillion.”

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Heavy-Duty Truck Demand Continues to Dominate U.S. Diesel Engine Sales, but ‘Best Opportunities’ in Light-Truck Market

A new report by Cleveland-based Freedonia Group sees U.S. diesel engine products demand hitting \$20 billion by 2011, up about 3.8%/year from 2006.

However, heavy-duty truck 2007 sales will slump because of new U.S. EPA heavy-duty emissions mandates this year, causing higher initial costs plus extra maintenance costs, the report notes.

While heavy-duty trucks are the largest segment of U.S. diesel engine demand, “the best opportunities will be found in the light-duty truck segment” in the next few years, Freedonia said. Today, motor vehicles account for 70% of diesel engine demand.

“Demand for diesel engines and parts in light-duty trucks will expand at a robust 9.6% annual rate” between now and 2011, the group found. “Although a much smaller market, passenger cars will also fare very well. Diesel engine-powered light vehicles currently account for less-than 3% of new-car sales in the U.S., so there is opportunity for a significant increase in penetration rates.”

Meantime, in the off-highway diesel market, sales will continue robust but “will experience slowing” through 2011 when much tougher U.S. EPA Tier-4 emissions regulations hit the non-road engine market between 2008-2015. Exhaust aftertreatment devices for PM and NOx control will add new costs to these engines, the report notes.

Meanwhile, the weakening U.S. dollar will aid U.S. exports of the much cleaner diesel engine products to non-U.S. markets, although “shipments will be constrained by the continued shift of production to lower-cost regions,” the report says. -- *Jack Peckham*

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JD Power Sees Diesels Taking 5% of U.S. Light-Duty Vehicle Sales in 2009

Automotive industry consultant JD Power & Associates released a new forecast indicating that 5% of U.S. light-duty new-vehicle sales in 2009 would be diesels, while gasoline-electric hybrids will take about 4% of the 2009 sales share.

JD Power earlier forecast that about 14% of U.S. new-car/light truck/SUV sales would be diesels by 2015, but “we will be releasing an update to that [forecast] in the second half of this year,” JD Power manager Kevin Riddell told *Diesel Fuel News*.

Asked whether the recent phenomenon of diesel fuel costing more than regular gasoline would have an impact on diesel car sales, Riddell told us that “yes, it could discourage diesel cars, but with gasoline over \$2/gallon the price [premium] is far offset by the added fuel economy. The premium to the consumer [buying a new car] is also not as high for a diesel car as it is for a hybrid car.”

Power also found that Toyota will continue to dominate U.S. hybrid gasoline-electric vehicle sales.

“Thanks in large part to increased production capacity, more than 70% of all new hybrid sales in the past two years have been Toyotas, although that number is expected to decline to 50% by 2009, reflecting the growth of new models from other automakers,” Power found. “Consumer preference for diesel-powered engines is also growing.”

“As gas prices rise, diesels seem a natural solution for the U.S., especially for manufacturers with large operations in Europe, where diesel cars are already in large demand,” Riddell added.

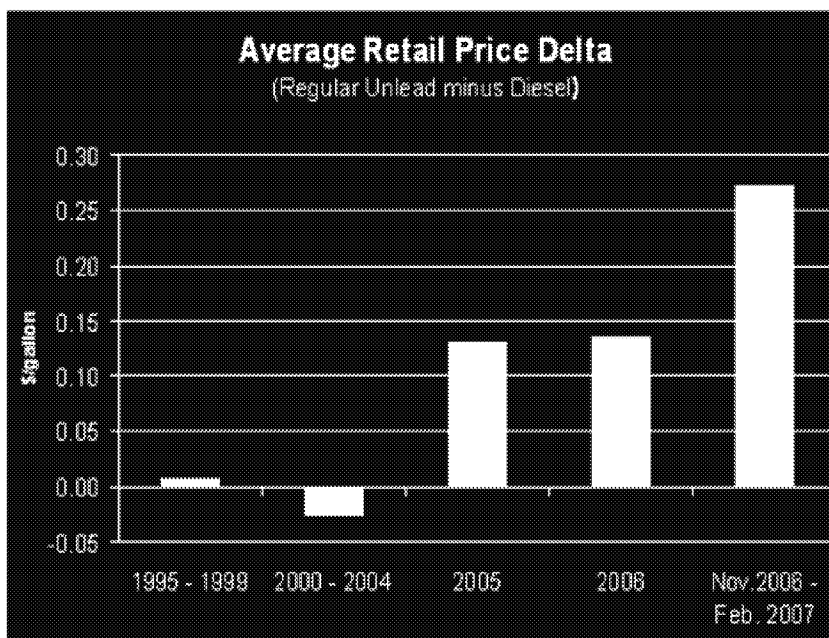
“For these carmakers, diesels provide a far more economical means than hybrids of improving CAFE averages. A vehicle with a modern diesel engine will have 30% better fuel economy than a comparable gasoline engine. Plus, advances have made modern diesel engines perform similarly to gasoline engines in terms of noise, filtration systems, and drive quality.” -- *Jack Peckham*

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Diesel Fuel Price Premium to Gasoline Severely Penalizes Payback

San Antonio, Texas – If U.S. ultra-low sulfur diesel (ULSD) fuel continues to trade at a considerable premium to regular gasoline, then robust sales of U.S. light-duty clean-diesel cars looks very tough, a U.S. Department of Energy (DOE) policy-analyst study shows.

As DOE office of policy & international affairs analyst Tom White showed in a presentation for the *Hart World Refining & Fuels Conference* here, U.S. diesel retail prices have been trading at a premium to U.S. retail gasoline for more than two years, with the premium soaring to more than 25 cents/gallon during the 2006/7 winter months:



Source: U.S. Dept. of Energy

What's more, average U.S. ULSD retail prices have even been averaging 7 cents/gallon more than **premium** unleaded gasoline between November 2006 to February 2007. That's hardly an encouraging sign to automakers looking to boost sales of high-efficiency diesel light vehicles in the North American market.

Here's what the payback on purchase of a new U.S. EPA Tier-2, Bin-5 clean-diesel light vehicle would be if these ULSD price premiums to premium unleaded (7 c/gallon) or regular unleaded (25 c/gal.) were to persist in coming years, White showed:

Diesel Vehicle Payback Calculation if ULSD Costs More Than Gasoline		
Fuel Cost Difference (gasoline at \$2/gallon)	ULSD 7 cents/gallon higher than premium gasoline	ULSD 25 cents/gallon higher than regular gasoline
Diesel Vehicle Fuel Efficiency	25% better than gasoline (20 mpg vs. 15 mpg)	25% better than gasoline (20 mpg vs. 15 mpg)

Diesel Vehicle Initial Cost Penalty (vs. Gasoline Vehicle)	\$3,840	\$3,840
Annual Fuel Savings	-\$467	-\$333
Payback on diesel vehicle	8 years	12 years
# of refuelings per year	10 fewer with diesel	10 fewer with diesel
Assumed savings if refueling time is worth \$40/hour	-\$138	-\$138
Payback if refueling time savings included	6 years	8 years
Payback if MPG & refueling savings calculated at \$3/gallon gasoline	4 years	5 years
<i>Source: U.S. DOE</i>		

It's possible that U.S. President George Bush's new "20 in 10" proposal to slash U.S. gasoline usage and boost corporate average fuel economy (CAFE) 5% by 2017 could have some impact on demand for diesel light vehicles. But the impact could prove to be slight, White explained.

Reason: automakers have "cheaper" alternatives to achieve higher the "20 in 10" CAFE targets, via gasoline vehicle powertrain improvements including early torque converter lockup, drag reduction, better lube oil, reduced engine friction, variable valve lift and variable valve timing, electric power steering, six-speed automatic transmission, stoichiometric gasoline direct-injection, turbocharging with engine down-sizing, cylinder deactivation and electric water pump, White showed. Adding all of these options to gasoline light truck/SUV vehicles could achieve CAFE improvements at less incremental cost than with diesels.

So, if ULSD fuel continues to trade at a premium to gasoline, and if automakers can find cheaper CAFE strategies than dieselization, then "diesel has a long way to go," White cautioned.

On the other hand, supplemental sources of diesel fuel – from coal-to-liquids (CTL), gas-to-liquids (GTL), and various types of biodiesel – potentially could bolster ULSD supplies, especially if these fuels are counted toward President Bush's goal to replace 35 billion gallons of gasoline with "alternatives" including ethanol.

The Bush proposal essentially credits various alternative fuels based on their Btu value versus ethanol, White explained. By that reckoning, CTL and GTL would have a 1.5-times greater alternative-energy value versus ethanol. So, these fuels "may play a part [in boosting ULSD supply] if the [Bush proposal] actually is implemented," he explained.

However, "CTL has a high CO₂ footprint – twice that of [crude refinery] gasoline," so if greenhouse gas limits are part of the "alt-fuels" goals, then "I can't see CTL happening," he said. – *Jack Peckham*

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U.S. Imports of ULSD Jump 21%

U.S. imports of ultra-low sulfur diesel (ULSD) and diesel containing >500 to 2,000-ppm sulfur greatly increased during the week ending March 30, according to the latest data from the U.S. Energy Information Administration (EIA).

Imports of ULSD jumped 21% between March 23 and March 30, from 199,000 b/d to 241,000 b/d. Imports of diesel containing >500 to 2,000 ppm went up 58.4%, from 77,000 b/d to 122,000 b/d.

Downgrading ULSD to diesel containing 500-ppm increased 37.9% to 120,000 b/d for the week ending March 30. Downgrading is the result of excess sulfur contaminating ULSD, with the resulting fuel “downgraded” to 500-ppm sulfur diesel.

Increases in imports come as U.S. retail diesel prices have risen more than 11% nationally between March 26 and April 2. Ironically, for the first time in many months, retail diesel on the U.S. West Coast is cheaper than gasoline, at \$2.885/gal. vs. \$3.096/gal., respectively. For California, that price difference is \$2.939/gal. for diesel and \$3.228/gal. for gasoline.

U.S. Distillate Fuel Oil (Diesel) Production, Stocks, Imports, Downgrades						
					<i>Source: EIA</i>	
Production (x 1,000 barrels/day)	2/23/07	3/2/07	3/9/07	3/16/07	3/23/07	3/30/07
<=15-ppm sulfur ULSD	2,478	2,374	2,453	2,600	2,593	2,583
>15 to 500-ppm sulfur	500	674	609	567	487	559
>500-ppm sulfur	969	976	850	978	967	908
Stocks (x 1,000 barrels)						
<=15-ppm sulfur ULSD	57,340	57,126	57,424	56,201	56,138	57,449
>15 to 500-ppm sulfur	22,289	22,643	21,723	21,569	21,558	20,395
>500-ppm sulfur	44,874	43,403	41,292	40,959	40,333	40,108
Imports (x 1,000 barrels/day)						
<=15-ppm sulfur ULSD	146	193	184	141	199	241
>15 to 500-ppm sulfur	65	45	58	1	47	2
>500 to 2,000 ppm	83	86	35	67	77	122
>2,000 ppm sulfur	87	108	45	12	26	10
Downgrading ULSD to 500-ppm (x 1,000 b/d)	41	51	51	58	87	120

-- Joanna Franco

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Hart World Refining & Fuels Conference to Feature Future Energy Outlook

Hart Energy’s upcoming World Refining & Fuels Conference, “Transport, Energy & Fuels,” offers an unparalleled opportunity to increase your knowledge of the markets and make new contacts.

Several hundred delegates are expected at the conference, to be held in Brussels at the Sheraton Brussels Hotel & Towers from May 8 to May 10, 2007.

As the demand for motor fuels continues to rise, along with prices, it is important to know the extent to which these trends will continue. Recognized experts have been chosen as keynote speakers.

Dr. Fatih Birol, the head of the economic analysis division of the International Energy Agency, will start the conference with an outlook for energy in the present and the future in his keynote address.

Dr. Fuad Mohamed Siala, OPEC's analyst on alternative sources of energy, will also discuss the present and future of oil, as well as alternative sources of energy.

Later, Kimmo Rahkamo, executive vice president of biodiesel for Neste Oil, will give a keynote speech on global sustainable refinery challenges.

Other keynote speakers on the first full day of the conference include Dr. Uwe Lahl, head of directorate general for environmental health & emission control for the German Federal Environment Ministry, and Paolo Monferino, CEO of Inveco. They will speak on new European vehicle emissions regulations.

On the second full day of the event, Reinhard Schulte-Braucks, head of unit automotive industry for the European Commission, DG Enterprise & Industry, will discuss the European Union strategy to reduce CO₂ emissions from passenger cars.

He will be followed by Jos Delbeke, the director of climate change and air for the European Commission, DG Environment, who will speak on the European Commission's fuel quality directive proposal.

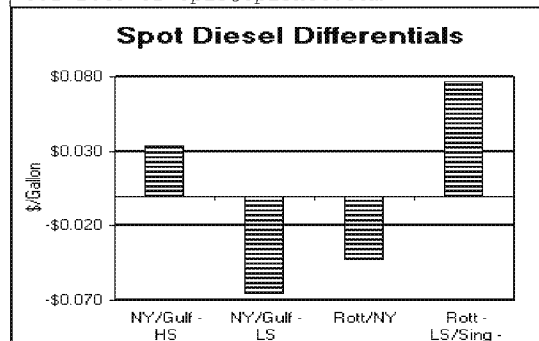
MEP Dorette Corbey, the fuel quality rapporteur for the European Parliament, will also give a keynote address.

The conference also allows for many exclusive opportunities to network over three days with hundreds of your peers from companies such as Axens, DuPont, Lyondell and Petrobras, as well as Albermarle, CDTech, Lubrizol and Oryxe. [Click here](#) for more information about the World Refining & Fuels Conference. Or to register, contact [Linda Carter](#) at 1-703-891-4804.

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Key Distillate Prices (\$/Gal)			
April 5, 2007			
New York	Low Sulfur	High Sulfur	ULSD
Spot	2.02	1.86	2.15
Rack No. 2	2.13	1.93	--
Rack No. 1	2.22	--	--
Houston			
Spot	2.09	1.82	2.16
Rack No. 2	2.23	1.98	2.25
Chicago			
Spot	2.15	--	--
Rack No. 2	n/a	2.25	2.25
Rack No. 1	2.55	--	--
Los Angeles			
	EPA ULSD	CARB ULSD	
Spot	2.18	2.18	
Rack	2.21	n/a	
Rotterdam			
	Low Sulfur	ULSD	
	50 ppm	10 ppm	
Spot	1.98	1.97	
Singapore			
	High Sulfur		
Spot	1.90		
Futures			
	High Sulfur		
NYMEX	1.86		
ICE	1.88		

Note: Rotterdam ULSD is 10ppm; low sulfur is 50ppm. In the Los Angeles rack prices: the ULSD column represents "CARB-ULSD" whereas the Low Sulfur is "EPA-ULSD." The Singapore and futures prices are for high sulfur. *Pricing Sources: Reuters, DOE, Hart Energy Publishing, OPIS. Contact OPIS at 888-301-2645 or Opis@opisnet.com*



Around the World of Diesel

U.S. Automakers Urge U.S. President George Bush to Support Ethanol, Biodiesel 'Alternative Fuels.' In a joint statement following a March 26 meeting with President Bush, the CEOs of DaimlerChrysler (DCX), Ford and General Motors (GM) said they "conveyed to the President their support for reducing gasoline consumption in the U.S. A significant portion of such reductions can come from the continued development and use of biofuels. We reiterated that each company stands ready to make half of its annual vehicle production E85 flexible fuel vehicles (FFV) or capable of running on biodiesel by 2012.

To capitalize on these commitments, we emphasized with the President the need for increased incentives to produce and distribute biofuels . . . If all manufacturers made a comparable commitment to make half their annual production capable of running on biofuels, we could increase the [petroleum] savings to 37 billion gallons of gasoline annually in 2017. Furthermore, we pointed out the benefits of clean diesel technology and that if all diesel vehicles today were fueled with B5 (five percent biodiesel) we could displace 1.85 billion gallons of petroleum per year, and 7.4 billion gallons per year if B20 (20 percent biodiesel) were utilized. In order to achieve these levels of petroleum savings, we asked the President to help provide Americans with reasonable access to these fuels at a price that is competitive with gasoline. Right now there are approximately 1,100 E85 pumps in the U.S. and 1,000 biodiesel pumps, out of 170,000 gas stations. We expressed to the President that we are willing to lead the way, but we need government and fuel providers to increase infrastructure before we can make a meaningful impact. . . . Plug-in hybrid vehicles can play a significant role in our transportation future. Increased funding for domestic battery research and development can help accelerate bringing these vehicles to market.”

BMW Chief Sees High-Performance Diesel Car Coming to U.S. ‘As Soon As Next Year:’ At the New York Auto Show last week, BMW CEO Tom Purves noted that “today, about two-thirds of BMWs in Europe are diesel powered and worldwide the figure is well over 40%. **For the United States a twin-turbo diesel will arrive as soon as next year.** And, when it comes to fuel consumption and emissions reduction, the highly efficient BMW diesel vehicle can definitely bear comparison with a hybrid vehicle without losing trunk space or having an uncertain future residual value. In fact, according to officials at the U.S. EPA, America could save up to 1.4 million barrels of oil per day, an amount equivalent to the oil we currently import from Saudi Arabia, if one-third of U.S. cars, pickups, and SUVs were diesel-powered. By the way: As Chairman of the Alliance of Automobile Manufacturers I believe that there needs to be a national, federal, economy-wide approach to addressing greenhouse gases effectively. The decision by the U.S. Supreme Court two days ago says that the U.S. EPA will be part of this process. The Alliance looks forward to working constructively with both Congress and the administration, including EPA and the National Highway Traffic Safety Administration, in developing a national approach. Next to the diesel, hybrid technology is another interesting possibility for raising the efficiency of traditional power trains in medium term. Therefore, we are cooperating with General Motors and DaimlerChrysler on hybrid technology. Each company will share in the development of the hybrid components.”

Cemtrex Pursuing Ship Diesel NOx, Smoke Emissions Markets: New York-based Cemtrex says it’s “pursuing the emissions monitoring market for marine ships and cruise lines for measurement of nitrogen oxide and smoke.” The company noted that International Maritime Organization (IMO) Marpol Annex VI regulations cover air pollution from ships, and IMO’s Marine Environment Protection Committee (MEPC) is pursuing subsidiary regulations. Ship owners have three options for compliance with the NOx requirements of a ship after the initial survey such as engine parameter check, on-board simplified measurement, and on-board direct measurement and monitoring, the company noted. “Cemtrex is pursuing various projects with large fleets of cruise lines to implement the NOx and Smoke Monitors to comply with the code. Cemtrex’s NOx analyzer works in extreme conditions expected in marine applications where excessive vibrations and saline atmosphere would adversely affect the performance of other conventional CEMS.”

Mercedes Sees 10% of its N. American Light Vehicle Sales as Diesels by 2010: According to a report from *Automobilwoche* (Germany), Mercedes foresees its U.S. diesel new-car sales share rising to 10% by 2010, up from about 3% today. The automaker is assuming that it can come to terms with U.S. EPA for a urea infrastructure to support a selective catalytic reduction (SCR) technology for diesel nitrogen oxides (NOx) control.

Indonesia's Kerosene Subsidies Will Slam Federal Treasury with \$111 Million Losses This Year:

According to a report from *Jakarta Post*, Indonesia faces losing Rp 1 trillion (US\$111.1 million) in losses this year “due to smuggling and the diversion of subsidized kerosene to unauthorized users, says the chairman of the country’s downstream oil and gas authority . . . Kerosene adulteration would be another major contributing factor to the predicted losses of Rp 1 trillion. A total of Rp 64 trillion from the national budget has been set aside for fuel subsidies in 2007. ‘As long as the disparities between subsidized and non-subsidized fuels remain high, the illegal use of subsidized fuel by industry will persist, causing huge losses to the state,’” the report quoted the oil & gas authority chairman as saying. What’s more, “many people were currently under investigation by the authorities for adulterating subsidized kerosene with diesel. A business engaging in such adulteration could cause the state losses of up to Rp 300 million per day, he added. The government has formed an interdepartmental team made up of representatives of the Coordinating Ministry for Political, Legal and Security Affairs, the Energy and Mineral Resources Ministry, the National Police, the Home Ministry and the Attorney General’s Office to tackle the problem . . . The price of subsidized fuel is on average Rp 2,000 lower per liter than fuel sold at market prices. The government has set a quota of 37.9 million kiloliters for subsidized fuel this year, which consists of 17 million kl of premium gasoline, 11 million kl of diesel and 9.9 million kl of kerosene . . . In late 2005, fuel prices were increased by 185 percent in the case of kerosene, 104 percent in the case of diesel and 85 percent in the case of premium gasoline, but smuggling remains widespread,” because Indonesia’s fuel prices are still far below world free-market prices.

Hong Kong Could Achieve Much Better Air-Quality by Converting All Diesel Trucks to Minimum Euro-4 Standards:

According to a report from *South China Morning Post*, “Hong Kong’s air pollution index would be below 100 on most days if all owners of heavy diesel trucks switched to cleaner Euro-4 engines, according to environmental officials. Speaking at the launching ceremony of a Euro-4 tour bus yesterday, principle environment protection officer Mok Wai-chuen, said: ‘If all truck owners converted their vehicles to Euro-4 standard engines, respirable suspended particulates would be cut by 18% cent and nitrogen oxides by 10%. The air pollution index will be below 100 most of the time.’ Under a HK\$3.2 billion scheme announced by Chief Executive Donald Tsang Yam-kuen in October, owners of 74,000 diesel trucks may be eligible for grants equal to 12 to 18% of the new vehicle's price to switch to Euro-4 models. The scheme begins [in April 2007]. Vehicles are the second-largest source of air pollution in Hong Kong, contributing about 25% of the city’s emissions of respirable suspended particulates and nitrogen oxides. Diesel trucks are the biggest vehicle polluters, accounting for 90% of particulates emissions and 80% of nitrogen oxides.”

France Seen Likely to Boost Biodiesel Blend Target to 7%: According to a *Reuters* report quoting a French agriculture ministry official, “France will probably raise the maximum level of biodiesel that can be blended with standard diesel within a few months, a move key to reaching the country’s ambitious biofuel targets . . . ‘We are working on a rise of the blending ceiling. If we raise it to 7% we should be able to meet the 5.75% [European Commission 2010] target,’ Bernard Chaud, biofuel specialist at the farm ministry, told *Reuters*. France, the second biggest European producer of biodiesel after Germany, has set a goal for biofuels to account for 5.75% of calorific value of all fuels sold in the country by the end of next year and 7% in 2010. . . Diesel currently sold in [French retail fuel] stations contains nearly 4% biodiesel by volume, often without consumers being aware of this.”

Diesel Vehicles Now Outselling Gasoline Vehicles in European New-Car Sales Survey: According to a RoadToData survey of European new-car sales, diesel models eked-out the lead over gasoline models as of September 2006. “It was very close: Diesel 49.61% to Petrol 49.59% (our figures currently are for the 12 months to September 2006),” RoadToData spokesman Rick Yarrow told *Diesel Fuel News*. “After falling for four consecutive quarters, average new car prices in the 19 markets monitored by the RoadToData Euro Index survey showed an annual increase of 1.3% in the final quarter of 2006. There was only a minimal difference between price increases for petrol and diesel models, indicating that the price premium for diesel models has

reached its peak . . . Overall, new car sales fell in 11 out of the 19 countries covered by the survey. Of the “Big 5” markets, Italy was again the strongest; showing a growth of 4.9%. Sales were static in Germany and declined in Spain, France and the UK. Belgium was Europe’s fastest-growing market (sales up 7.7%). Poland (down by 7.9%) saw the largest year-on-year fall in prices. Sales of diesels sales finally overtook those of petrol cars at the end of 2006. SUVs (+9.6% year on year) and Estate cars (+7.4%) grew most quickly. MPV sales leveled off and demand for Sedans fell by 6.9%.”

Bapco Boasts ‘Cleanest Diesel in the World’ in \$680 Million Project: According to a report from *Bahrain Tribune*, “Bapco is currently in the process of commissioning a \$680 million investment to make the cleanest diesel in the world. ‘This will enable the company to diversify our geographic markets, and it is a diversification of our product range that it will make our company more competitive, and reduce sulphur oxide emissions from vehicles,’” said Dr. Mustafa Al Sayed, Chief Executive of Bapco. The Euro-5 (<10-ppm sulfur) diesel would qualify for sale in Europe, North America and wherever ULSD fuel is mandated.

U.S. Diesel Fuel Retailers, American Trucking Associations Push for More Study on Automated Temperature Compensation (ATC) in Response to ‘Hot Fuel’ Charges: Numerous fuel retailing associations including NATSO, PMAA and SIGMA, along with American Trucking Associations said they’ve formed a coalition that will seek a “complete and thorough examination of fuel dispensing practices to fully understand and evaluate the impact of temperature variation on consumers.” The ad-hoc coalition called “PUMP” said that “retailers have banded together to fight recent allegations that consumers are receiving less than they pay for as the result of retailers selling gasoline [and diesel] at temperatures higher than standard 60-degree [F] reference temperature. Based on unverifiable data provided by the Owner-Operator Independent Drivers Association to the *Kansas City Star*, proponents are demanding that retail gas marketers install expensive automatic temperature compensation (ATC) devices, claiming significant, but unsubstantiated, savings for consumers [see *Diesel Fuel News* 1/2/07, p2]. PUMP members counter that there is currently no accurate or statistically reliable data to suggest that consumers are being adversely impacted under the existing system. Coalition members maintain that any variation from the 60-degree standard reference temperature balances out for consumers based on year-round, seasonal averages. The coalition further emphasizes that proponents of ATC ignore the fact that the costs associated with enforcing and implementing the proposed regulatory changes would most likely be borne by the very consumers they claim to be protecting . . . Before costly solutions are forced on consumers and retailers, it’s imperative to confirm whether the problem is real, how widespread it is, and whether the costs of implementing any solution will be offset by a real and measurable economic benefit, if any, to the consumer.”

Ford/International Flame-Throwing Diesel Particle Filter Now Available on Internet Video: To see what has been happening to some 2008 model-year Ford heavy-duty pickup trucks equipped with International “PowerStroke” diesel engines and diesel particle filters, check out this web-site: [link to source document](#) . Ford recalled the vehicles for reprogramming after several reports of such incidents (see *Diesel Fuel News* 3/26/07, p19).

U.S. Federal Court Trashes Lawsuit Blaming Diesel Tanks for Collapse of Office Building Next to Twin Towers on Sept. 11, 2001: U.S. District Judge Alvin Hellerstein of the Southern District of New York last month rejected lawsuit claims against AMEC and the other contractors, designers and architects that helped build and maintain emergency operations centers at 7 WTC, which caught fire and was destroyed following the 9/11 terrorist attacks on the adjacent Twin Towers. “In the massive litigation that followed the collapse of 7 WTC, plaintiff Consolidated Edison of New York sued the owners, lessees, and tenants of the building, as well as all companies that allegedly were involved in the design or construction of New York City’s Office of Emergency Management and the Salomon Brothers (now Citigroup) build-out at 7 WTC, which included the installation of diesel fuel tanks as part of emergency back-up power systems,” as AMEC defense attorneys

Mound Cotton Wollan & Greengrass pointed out. "The plaintiff contends that improper design, construction, and installation -- particularly the existence of large diesel fuel tanks in the building associated with the power systems -- caused the collapse of the building, which in turn destroyed Con Edison's substation. The complaint alleges that the diesel fuel made the fires burn so intensely that the building's structural support was compromised, and it was impossible for firefighters to quell the blaze."

Corn-Ethanol Demand Growth Spells More Bad News for Diesel Fuel Consumers: According to a *Reuters* report quoting petroleum traders, "expectations of a bumper U.S. corn crop will keep diesel prices high this year as farmers rev up tractors and harvesters to meet rising demand for grain-based ethanol. Diesel prices have surged ahead of planting season, which the U.S. government said will see the largest amount of land allocated to corn in 63 years as the world's top oil consumer ramps up use of the gasoline additive. Industry experts say the rising agricultural demand, combined with truck and rail shipping, should keep cash diesel prices at high premium to heating oil futures on the New York Mercantile Exchange. 'I think diesel is already in extremely tight supply and the agricultural bubble that occurs in the spring and in the fall is going to be exacerbated by intense farm demand,'" *Reuters* quoted Lewis Adam of Kansas City-based ADMO Energy, LLC as saying.

Shanghai Petrochemical's Diesel Production, Profits Down in 2006: In releasing its annual report for 2006, Sinopec Shanghai Petrochemical Co. announced a 10.1% decline in 2006 revenue versus 2005, while profit plummeted a whopping 57.85% as compared to 2005. "Due to the continued rise in international crude oil prices, the Group's production cost witnessed a substantial rise as compared to 2005. In addition, the Chinese government continued to maintain price controls on petroleum products. Despite being granted a subsidy of RMB282.1 million by the Ministry of Finance, the Group was unable to fully cover the loss arising from the sales of petroleum products. As a result, the Group's economic efficiency saw a substantial fall over 2005," the company said. In 2006, the Group processed 8,920,300 tons of crude oil, down 6.03% over 2005, while gasoline, diesel and jet fuel output all fell compared to year prior. Diesel production (2.74 million tons) was nearly four-times that of gasoline and five times that of jet fuel. On a positive note, the company "made significant progress on the construction of key projects. In particular, the 3,300,000 tons/year diesel hydrogenation project and the 380,000 tons/year ethylene glycol plant was mechanically completed in December. The Group's structural adjustment project, which aims at further adjusting and optimizing businesses and products, was fully commenced by the year's end. The project includes the addition of flue gas desulphurization facilities to the furnaces of the coal-fired power plants, the 620 tons of steam/hour boiler, the 100MW power generation unit project, the 1,200,000 tons/year delayed coking plant project, among other projects."

UP's Scheme to Slash Diesel Emissions Might Not Be Enough to Win Rail-Port Expansion Approval: As noted in a report this month by the *Long Beach (Ca.) Press-Telegram*, Union Pacific Railroad submitted a \$300 million proposal to upgrade its largely diesel-powered intermodal container yard near the Port of Los Angeles. "The modernization plan seeks to double the facility's container-handling capacity while replacing nearly all the yard's diesel trucks and gantry cranes with electric-powered equipment," the report noted. "Approval is required from the Port of Los Angeles Harbor Commission . . . The near-dock freight yard, known as the Internodal Container Transfer Facility, currently handles an estimated 700,000 containers annually. Containers are delivered to the site by truck, then loaded onto trains heading inland. Upgrades would allow the facility to reduce lighting, noise and air pollution by investing in new yard equipment, locomotives and trucks. The plan calls for using special electric cranes to stack containers and employing hoods to direct light away from area homes. The 24/7 operation would also add truck gates and invest in other efficiencies to reduce truck wait times by 50 percent, officials said. Specifically, the plan calls for removing 71 of the existing 73 diesel yard trucks with electric, rail-mounted cantilever cranes. Ten existing diesel gantry cranes will also be replaced with electric equipment. UP also plans to switch out many long-haul, short-haul and yard

locomotives with cleaner trains. Port authorities received the proposal Friday and will make a formal response within 30 days. . . . [However], in recent years, operations there have drawn fierce opposition from community groups concerned about noise, traffic and air pollution. Long Beach resident John Cross, an active railyard opponent who lives near the site, said he and like-minded residents would fight any expansion projects.”

Romania Clean-Diesel Project Due to Come On-Line Next Year: According to a report from *Romanian News Digest*, Petrom is investing \$107 million in a desulfurization project that, combined with other refinery expansions due to be completed by 2010, eventually will allow 2.1 million tons/year low-sulfur diesel capacity at its Petrobrazi refinery. First production of low-sulfur diesel starts next year. Any production for Europe must meet ULSD standards. Austrian oil group OMV is majority owner of Petrom.

Thai Ministry Wants to Force 1 or 2% Biodiesel Blending: According to a report from *Thai News Service* citing a report from *The Nation*, “the Energy Ministry will force all oil refiners to mix biodiesel with diesel, to boost biodiesel consumption by 500,000 to 1 million litres a day . . . the measure would be reviewed by the National Energy Policy Council, and oil refiners could be given a year before the compulsory measure started. Under the measure, diesel would be mixed with 1 per cent or 2 per cent biodiesel and called B1 or B2.” A government oil fund would subsidize the “rising cost of producing biodiesel, now at Bt24 a litre, while the ex-refinery diesel price is only Bt16 a litre. The subsidy could be equal to Bt10 a litre, in order to encourage oil retailers to mix diesel with biodiesel,” the report said. However, “the ministry could make it mandatory for oil refiners to prepare B5 biodiesel. At that time, the Oil Fund subsidy would be unnecessary.” The report further quoted Energy Minister Piyasvasti Amranand as saying that “B5 biodiesel is practical for all diesel engines, but carmakers are still reluctant to guarantee that. The Toyota Group has proposed it would come up with a warranty only when there are six additional measures on biodiesel standards -- for example, to cover the ratio of methanol mixture. The ministry is working on the measurement system and monitoring B100 production.”

Steve Westbrook Wins ASTM International Award of Merit: ASTM’s D2 (distillate fuels) chairman Steve Westbrook, a principal fuels scientist at Southwest Research Institute (SwRI), last week was selected for the ASTM International 2007 Award of Merit. With the award also comes recognition as a Fellow of ASTM. “Established by the ASTM International Board of Directors in 1949, the Award of Merit is the highest society award granted to members for distinguished service and outstanding participation in ASTM committee activities,” the group announced. “Since joining the SwRI staff in 1979, Westbrook has conducted research on fuel stability additives, diesel fuel-degradation reaction mechanisms, the effects of fuel container surfaces on fuel quality and fuels from alternative sources. He has studied advanced analytical methods for field analysis of fuels, and his recent work has involved bio-diesel oxidation and oxidation test methods. Westbrook has been participating in ASTM activities since 1979, currently serving as the chairman of the ASTM subcommittee on burner, diesel, marine and non-aviation gas turbine fuels. In addition to ASTM, he is also chairman of the International Association for Stability, Handling, and Use of Liquid Fuels (IASH).

‘Gen-Set’ Railway Locomotive Claims to Achieve U.S. EPA’ Tier-4 Emissions Limits 8 Years Ahead of Proposed 2015 Deadline: National Railway Equipment Co. (NREC) announced last week it won certification from U.S. EPA for its three-engine (2100 HP) “GenSet” locomotive. “This certification includes NREC’s N-ViroMotive four axle and six axle models 3GS-21B and 3GS-21C, which have a switching and line-haul NOx FEL of 3.0 g/bhp-hr. These NOx emissions levels are best in class worldwide for original equipment manufacturers of freight haul locomotives. It is effectively 5-8 years in advance of future anticipated EPA emissions regulations for new freight haul locomotives. In addition to receiving the subject certification, NREC has been recognized recently by the California Air Resources Board (CARB) and the Texas Commission on Environmental Quality (TCEQ) as an original equipment manufacturer of Ultra Low Emitting Locomotives. Advantages of the N-ViroMotive ULEL locomotives include: 80%+ reductions in nitrogen oxide (NOx) and particulate matter (PM) emissions; 50% to 65%+ improvement in tractive effort

adhesion efficiency; 35% to 50% fuel savings capability in switching and road switching duty cycle services . . . The N-ViroMotive product lines easily achieve the most stringent regulatory noise level requirements for off-road capital equipment.”

CARB Explains Marine Gasoil Fuel-Mixture Limits in Regulations for Ocean-Going Ship Auxiliary Engines: CARB last week unveiled a notice explaining how ship operators must comply with low-sulfur marine gasoil limits in and near California ports (see: [link to document](#)). The CARB regs imposed a 0.5% sulfur limit on marine gasoil (MGO) or marine diesel oil (MDO) since last January. Starting Jan. 1, 2010, MGO must not contain more than 0.1% sulfur. The new rule shows how CARB will treat mixtures of MGO and MDO types.

U.S. Farmers Slashing Soybean Production That Could Have Gone for Biodiesel, Planting Corn for Ethanol Instead: According to a report from U.S. Dept. of Agriculture, high corn prices spurred by a surge in demand for ethanol production have led to a 15% increase in planned plantings of corn in the United States. U.S. farmers intend to plant 90.5 million acres of corn this year—an increase of 12.1 million acres—resulting in the largest area planted for corn since 1944. The increased corn plantings will mostly cut into the acreage planted for other crops, including soybeans, cotton, and rice. U.S. farmers plan to plant 67.1 million acres of soybeans, down by 8.3 million acres in 2006, the report said.

Petrobras Introduces 200-ppm Sulfur, 51-Cetane Marine Diesel Fuel for Pleasure Craft: Petrobras launched “Diesel Verana” grade for pleasure boats in the Brasil market last week. The new grade cuts pollutants and offers “better performance,” Petrobras said. The fuel has a maximum 200-ppm sulfur compared to other marine gasoils of 10,000-ppm sulfur, Petrobras pointed out. Diesel Verana, compared with typical marine gasoil, “provides smoke reduction up to 83%,” the company said. Diesel Verana also has a greater cetane number (minimum guaranteed: 51), 27.5% superior to marine gasoil (minimum: 40), which “improves the performance of the boat,” Petrobras says.

Lukoil Expanding ULSD Retail Offerings in Northwest Russia: According to a report from *Novecon* news service, “Lukoil is to build premium class [fuel] stations at its Finnish subsidiary Teboil brand in Northwestern Russia. St. Petersburg and the Leningrad Region are to get from one to three Teboil petrol stations this year. Euro- 3 petrol and Euro-4 diesel fuel [50-ppm sulfur ULSD] will be on offer, said Lukoil press secretary Dmitri Dolgov. Simultaneously, several petrol stations are to open in Finland under the Lukoil brand.

City of Dallas Using NOx-Reducing Additive for 20% Biodiesel Blend: Following Texas Commission on Environmental Quality (TCEQ) verification of the Oryxe “LED” additive to overcome the typical nitrogen oxides (NOx) increase of B20 blend, the City of Dallas last week announced it’s started running much of its fleet on biodiesel. The Oryxe-additized B20 blend is fueling several hundred vehicles including sanitation trucks, utility trucks and construction equipment. The city plans to use approximately 350,000 gallons of the biodiesel per year. “Tests on ORYXE LED for Biodiesel followed strict federal test procedures, which are mandated by the TCEQ, and were conducted at West Virginia University Engine and Emissions Research Laboratory,” Oryxe said. “The B20 fuel treated with the ORYXE additive showed equivalent NOx levels to Texas Low Emission Diesel (TxLED) fuel (5.7% lower than standard EPA petroleum diesel). In addition to reducing NOx, the biodiesel blend with ORYXE Energy technology also reduced particulate matter (PM) by 28.8%, total hydrocarbons (THC) by 17.5% and carbon monoxide (CO) by 19% beyond the required TxLED levels.”

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